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SIGNAL CENTER AND SCHOOL
FORT MONMOUTH, N.J.

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INFORMATION SHEET
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# RADIOTELEGRAPH PROCEDURES

OBJECTIVES

The objectives of this information sheet are --

a. To explain radiotelegraph net operation and procedures.

b. To show how brevity codes -- prosigns and operating signals -- are used in radiotelegraph operation.

c. To describe radiotelegraph message format.

d. To discuss radiotelegraph techniques.

* This information sheet supersedes SSTS 56004, Radiotelegraph Procedures.

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## Section I. ELEMENTS OF RADIOTELEGRAPH

### 1. INTRODUCTION

Radiotelegraph is one of the oldest and most reliable means of communications. Radiotelegraph (RATG) equipment and procedures are simple and RATG signals travel great distances with little loss in quality. Communication by RATG is often possible when other types of electrical communications fail.

### 2. EMPLOYMENT OF RATG

a. RATG is used at many echelons of command in tactical and fixed station operations. Many commands which have an RATG capability use it as a standby means of communication. For example, almost all vehicular radio sets can readily be converted to RATG by trained operators.

b. Radioteletypewriter teams have an RATG capability and can use it in emergency operations providing there is at least one trained operator in each team. Although RATG communication is slower (8-10 words per minute) than radio teletypewriter, RATG provides dependability when needed.

Note: Training RATG operators is a unit or local responsibility; service schools do not normally offer this type of instruction. However, considering the advantage of being able to use the RATG capability, RATG operator training is indispensable.

### 3. RATG NET OPERATION

a. Net Control Station. Normally, one station in each net is designated as the net control station (NCS). The NCS determines whether the net operation shall be free or directed.

b. Free Net. In a free net, each station may transmit messages "at will," subject to interruption under the rules of precedence (Appendix V).

c. Directed Net. In a directed net, each station must obtain permission from the NCS before transmitting a message.

### 4. NET DISCIPLINE

a. Net Control Station Responsibilities. In addition to determining whether the net shall be free or directed, the NCS is also responsible for all procedures used within the net. Other duties of the net control station are to --

(1) Prevent unofficial communication ("chatter").

(2) Monitor all transmissions to make sure that correct procedure is used in the net.

(3) Carry out the commander's orders for emergency silence.

(4) Determine the broadcast schedule ($\overline{CQ}$), as necessary (para 20).

(5) Order frequency changes and shifts, as required.

(6) Establish or enforce authentication criteria.

b. Operator Responsibilities. Each operator shares the responsibility for the efficiency of the net. To maintain high efficiency, operators must NOT --

(1) Have unofficial communication (chatter).

(2) Violate emergency silence.

(3) Perform excessive tuning and testing.

(4) Transmit personal signs (operator initials).

(5) Make unauthorized use of plain language (clear text).

(6) Use other than authorized prosigns.

(7) Use profane, indecent, or obscene language.

(8) Transmit at a speed faster than the slowest operator in the net.

(9) Take excessive time to tune (ZRF) or change frequency (QSY).

(10) Use excessive transmitter power.

(11) Use improper break-in procedure.

## 5. CALL SIGNS

An RATG call sign is a combination of characters (letters and numbers) which identifies a communication facility, command, authority, activity, or unit. Call signs are categorized as follows --

a. Fixed Call Signs. Fixed call signs are assigned by the International Telecommunications Union (ITU) and are published in ACP 100 (classified). Examples of fixed call signs are listed below.

| Fixed Call Sign | Identifies |
|---|---|
| WAR | Department of the Army, Washington, D. C. |
| AIR | Department of the Air Force, Washington, D. C. |
| NPM | US Navy Communication Station, Honolulu, Oahu, Hawaii |
| ADA | US Army Communication Station, Tokyo, Japan |

b. Tactical Call Signs.

(1) Tactical call signs are allocated by Allied authority to each Allied country or force. Within the US Army, tactical call signs are further allocated to subordinate commands by the Frequency Management Directorate, Office of the Chief, Communications-Electronics (COMM-EL).

(2) Tactical call signs are listed in the ACP-110 series (classified). Each call sign is a four-character combination of letters and digits, none of which is all letters or all digits. Tactical call signs may be used for almost all communications except voice and tape relay. Tactical call signs are distinguished by type as shown in the chart below.

## TACTICAL CALL SIGNS

| TYPE | IDENTIFIES | EXAMPLE* |
|---|---|---|
| Single | One command, one communication station, or both. | SS7B |
| Collective | Two or more commands, two or more communications stations, or both. | 4C54 |
| Net | All of the commands in a net, all communications stations in a net, or both. Even though a net call is a type of collective call, it is usually considered as a net call not as a collective call. | 4C54 |

*Additional random examples of tactical call signs are -- G864, S43T, FP22, 76S5, 39LM, 7HOØ, 8JFR, 6G4G.

## 6. PROSIGNS

a. Definition. A communications prosign (procedure sign) is a group of one or more letters, or one or more letters followed by a digit. Prosigns are used to convey, in a condensed form, certain frequently used instructions, orders, requests, and other information related to communications. Prosigns are sometimes classified as a brevity code but are not to be considered as a security code.

b. Meanings of Prosigns. The exact meaning of a prosign -- and some have more than one meaning -- can be determined by its relationship with other words in a message. For example, in the phrase "R 161419Z", the prosign R means ROUTINE which is the message precedence. In the prase "DE FP22 R $\overline{AR}$", the prosign R means RECEIVED, in this case by station FP22. Prosigns and their meanings are covered in Appendix I.

## 7. OPERATING SIGNALS

a. Definition. An operating signal is a group of either three letters or three letters followed by a digit; the first letter is always either Q or Z. Stations use operating signals as a brevity code during all phases of communications. Operating signals that begin with Q may be used by both military and civilian stations; signals that begin with Z are used only by Allied military stations.

b. Meanings of Operating Signals. Each operating signal has one standard meaning which can be used to give an order or advice and to ask a question or give an answer. When an operating signal is used to ask a question, it must be preceded by the prosign $\overline{INT}$. The meanings of some frequently used operating signals are covered in Appendix II. ACP-131(A), Communications Instructions, Operating Signals, lists all standard operating signals.

## 8. CALLING AND ANSWERING IN AN RATG NET

a. Calling and Answering Sequence. In an RATG net, call signs must be transmitted in alpha-numeric order and called stations must answer in alpha-numeric order (from A through Z and from 1 to Ø).

Note: The slant (/) is considered as a 27th letter of the alphabet when it is used in a call sign. Allied military stations do not use the slant in their communication operations.

The following is an example of the calling and answering sequence using the call signs from the net in figure 1.

| Called stations in alpha-numeric order | From | Call sign of calling station | Go ahead -- transmit |
|---|---|---|---|
| G864 SS7B S43T | DE | 76S5 | K |

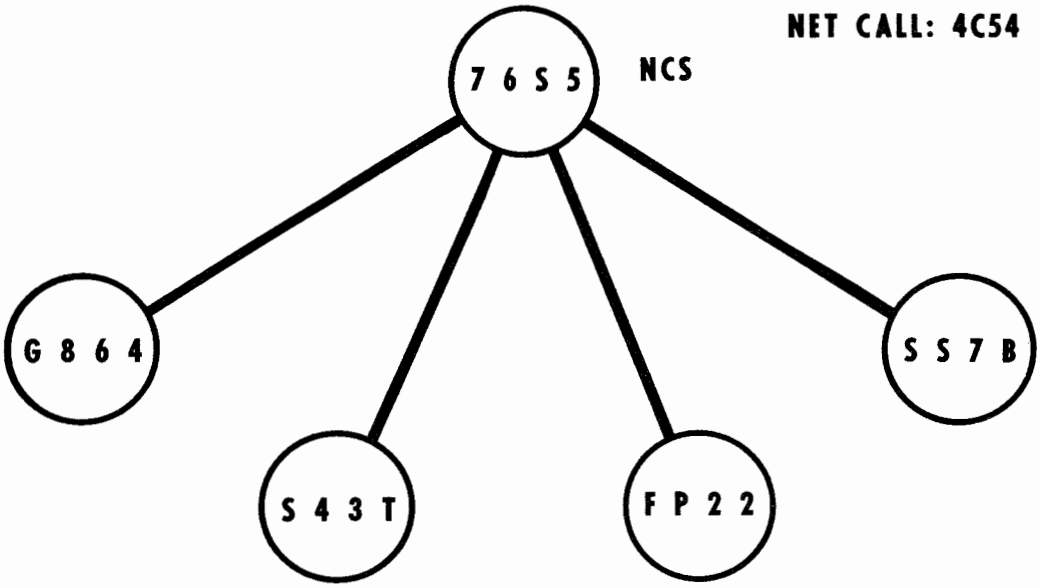


Figure 1. One type of radiotelegraph net.

b. Calling. A calling station first transmits a "preliminary call" to the called station or stations. Examples of preliminary calls that might be used in the RATG net of figure 1 are listed below.

| Examples of preliminary calls | Type of call |
|---|---|
| G864 DE FP22 K | Single call in a free net. |
| G864 S43T DE FP22 K | Multiple call in a free net. |
| 4C54 DE 76S5 K | Net call by the NCS. |
| 4C54 XMT FP22 DE S43T | Net call with station FP22 exempted by station S43T. |
| S43T S43T DE 76S5 76S5 K | Single call in a free net. Call signs are transmitted twice because of difficult communications. |

c. Answering. A called station may use a normal call or an abbreviated call in replying to the calling station. A normal call includes both the calling and called station's call signs. The abbreviated call includes only the call sign of the called station. The normal call, however, is seldom used. Examples of calling and answering are listed below.

| Preliminary Call | Abbreviated Call Reply |
|---|---|
| G864 DE FP22 K | DE G864 (Normal call reply is: FP22 DE G864 K) |
| 4C54 DE 76S5 K (from NCS) | DE FP22 K (1st station)<br>DE G864 K (2nd station)<br>DE SS7B K (3rd station)<br>DE S43T K (4th station) |
| FP22 DE SS7B K | DE FP22 AS (station FP 22 not prepared to receive message -- wait). |

## 9. SIGNAL STRENGTH AND READABILITY

A station in an RATG net considers that the strength and readability of its transmitted signal is good until it is informed otherwise by other stations in the net. The operating signals QSA for strength and QRK for readability are used as follows.

| Strength | Readability |
|---|---|
| QSA1 -- scarcely perceptible | QRK1 -- bad |
| QSA2 -- weak | QRK2 -- poor |
| QSA3 -- fairly good | QRK3 -- fair |
| QSA4 -- good | QRK4 -- good |
| QSA5 -- very good | QRK5 -- excellent |

DE FP22 QSA3 K -- signal strength fairly good.
DE FP22 QSA2 K -- signal strength weak.
DE FP22 QRK3 K -- signal readability fair.
DE FP22 QRK2 K -- signal readability poor.
DE FP22 QSA3 QRK2 K -- signal strength fairly good, signal readability poor.

STUDENT NOTES

## 10. DA FORM 11-53, LOG AND OPERATOR'S NUMBER SHEET

a. Station Log. One side of DA Form 11-53 provides a log for RATG stations. Figure 2 is an example of how operators at the station maintain the log.

**LOG**

Enter opening and closing time, frequencies, frequency checks and frequency changes, traffic delays and any incidents or conditions affecting circuit efficiency. Remarks need not be confined to one line.

| STATION—CHANNEL—NET (*Strike out words not applicable*) | DATE |
|---|---|
| 76S5 (NCS) | 25 Jun 63 |

| TIME | OPERATOR'S SIGN | REMARKS |
|---|---|---|
| ØØØ1Z | CH | CHANGE OF TRICK--RELIEVED CPL SWABBLE |
| ØØØ5Z | CH | QSY 413Ø KC |
| ØØ15Z | CH | ZBO1P 4C54--S43T QSZ QRK2 |
| ØØ56Z | CH | QRM $\overline{AA}$ |
| ØØ59Z | CH | QRM $\overline{AA}$ ZUG |
| Ø234Z | CH | QRN |
| Ø238Z | CH | QRN ZUG |
| Ø8ØØZ | CH | CHANGE OF TRICK--RELIEVED BY PFC F FLINCH |
| Ø81ØZ | FF | CHANGE OF TRICK--RELIEVED CPL HANSON |
| | | |
| | | |
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| | | |

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Figure 2. Station log format provided by DA Form 11-53.

b. Operator's Number Sheet. The net control station may require each RATG station to maintain the Operator's Number Sheet provided on DA Form 11-53. The station operators make entries on the sheet which show the number of messages sent and received at each station in the net. In the example shown in figure 3, station 76S5 --

1. Sent 3 messages to station FP22.
2. Sent 1 message to station G864.
3. Received 1 message from S43T.
4. Sent 1 net call message (4C54).

STUDENT NOTES

## OPERATOR'S NUMBER SHEET

*(FM 24-18)*

Check off both sent and received numbers immediately and enter Date-Time Group and personal sign. Strike out word not applicable in heading "Sent/Received." "Other Stations Call" may be entered in "Sent/Received" block if only one column is required.

| STATION CALL | NET CALL | DATE |
|---|---|---|
| 76SS | 4C54 | 25 JUN 63 |

| OTHER STATIONS CALL | | | | | |
|---|---|---|---|---|---|
| FP 22 | | G864 | | SS7B | |
| SENT ~~REC'D~~ | ~~SENT~~ REC'D | SENT ~~REC'D~~ | ~~SENT~~ REC'D | SENT ~~REC'D~~ | ~~SENT~~ REC'D |
| → 25Ø932Z FF | 1 | → 25LØ38Z FF | 1 | 1 | 1 |
| → 25Ø952Z FF | 2 | 2 | 2 | 2 | 2 |
| → 25LØ38Z FF | 3 | 3 | 3 | 3 | 3 |
| | 4 | 4 | | 4 | 4 |

| OTHER STATIONS CALL | | | | | |
|---|---|---|---|---|---|
| S43T | | 4C54 | | | |
| SENT ~~REC'D~~ | ~~SENT~~ REC'D | SENT ~~REC'D~~ | ~~SENT~~ REC'D | SENT REC'D | SENT REC'D |
| 1 | → 25Ø416Z CH | → 25ØØLØZ CH | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | |
| 3 | 3 | 3 | 3 | | 3 |
| | | | | | 4 |
| 9 | 9 | 9 | 9 | 9 | 9 |
| 0 | 0 | 0 | 0 | 0 | 0 |

DA FORM 1 JUN 58 11-53 REPLACES WD AGO FORM 11-53, 1 JUL 45, WHICH IS OBSOLETE.

Figure 3. Operator's Number Sheet on DA Form 11-53.

STUDENT NOTES:

## 11. MESSAGE FORMATS

There are three formats used for RATG messages -- plaindress, abbreviated plaindress, and codress.

a. Plaindress Format. In the plaindress format, the address information -- FROM, TO, INFORMATION, and EXEMPTED -- is contained in the message heading. In tactical nets and rear area administrative nets, the call signs in the message heading are used as addresses. In purely administrative nets, the address is in clear text, for example, CINCUSFORMED TO CINC TG 12.4. When security is demanded, the call signs provide address information. Examples of plaindress format are shown in the chart below. In the examples, the dash (--) indicates that the operator will send the separative prosign, II.

SAMPLE MESSAGES IN PLAINDRESS FORMAT

| | |
|---|---|
| 1. Single address with call sign denoting address.<br><br>FP22 DE 76S5 NR1 -<br>P - 25Ø932Z<br>GRNC<br>BT<br>TEXT OF MESSAGE<br>BT<br>ZNB AL<br>K | 2. Multiple address with dual precedence and address indicated by call signs in FM, TO, and INFO lines.<br><br>FP22 G864 DE 76S5 NR3 NR1 -<br>O - P - 251Ø38Z<br>FM 76S5 -<br>TO G864 -<br>INFO FP22<br>GRNC<br>BT<br>TEXT OF MESSAGE<br>BT<br>ZNB PR<br>K |
| 3. Multiple address with dual precedence and use of operating signal ZFH to denote TO and INFO addresses.<br><br>FP22 G864 DE 76S5 NR3 NR1 -<br>O - P - 251Ø38Z ZFH1 G864<br>GRNC<br>BT<br>TEXT OF MESSAGE<br>BT<br>ZNB PR<br>K | 4. Net call with all addresses ACTION and use of XMT.<br><br>4C54 XMT FP22 DE 76S5 NR2 -<br>P - 251112Z<br>GRNC<br>BT<br>TEXT OF MESSAGE<br>BT<br>ZNB XR<br>K |

b. Abbreviated Plaindress Format. In the abbreviated plaindress format, the address information is provided in the same manner as in the plaindress except that either the precedence, the date-time group, or the group count, or all three, may be omitted. The following is an example of the abbreviated plaindress format for a single address message with the call signs indicating the address.

FP22 DE 76S5 NR1
BT
TEXT OF MESSAGE
BT
ZNB AL
K

c. Codress Format. In the codress format, the entire address is contained in the encrypted text as shown below.

4C54 DE 76S5 NR3 -
O - 251435Z
GR 76
BT
DJYCR LIMA LIMA DELTA ALFA ECHO. . . .DJYCR
BT
ZNB JH
K

## 12. PROCEDURE FOR LONG MESSAGES

A long message is one which contains more than 100 groups. Long messages are normally transmitted in blocks of no more than 100 groups per block. At the end of each block, the operator follows the procedure in either a or b below.

a. After each block, the operator transmits the prosign B, indicating more to follow. At the end of the last block, the operator transmits the prosign K. The receiving operator then questions doubtful portions of the message.

b. After each block, the operator transmits the prosign K which permits the receiving operator to question doubtful portions of the message, block by block.

## 13. PROCEDURE FOR "STRINGS" OF MESSAGES

a. When communications are good, a station may send several messages, or a "string," without interruption. Normally, there are not more than 5 messages to a "string." The transmitting station tells the receiving station that it is sending a "string" by first sending the operating signal ZBO suffixed with the number of messages and precedence, if required. For example, ZBO5P indicates that 5 PRIORITY messages will be transmitted.

b. At the option of the transmitting station, either the prosign B or K is sent at the end of each message in the "string." Of course, after the final message, the prosign K is sent. The receiving station receipts for the "string" of messages after the final message.

## 14. SERVICE MESSAGES

a. Use. After a message is transmitted and receipted for, one of the stations may notice an error or the receiving station may question a part of the message. Since the receipt has been sent, the only correct method of sending or receiving a correction is by a service message. Thus, service messages are used to --

(1) Supply information about a message.

(2) Question doubtful portions of a message.

(3) Reply to another service message.

b. Format. Any of the three message formats (para 12) may be used for service messages.

(1) When either the plaindress or the abbreviated plaindress format is used, the abbreviation SVC must be used in line 10 of the format instead of GRNC.

(2) When the codress format is used, the actual group count must be used in line 10 of the format, for example, GR 53.

Note: The use of SVC in codress format is a serious security violation.

## 15. PROCEDURE MESSAGES

a. Use.

(1) Procedure messages are used to correct or clear up a doubtful part of a message before the operator sends a receipt for a message. Each transmission required for this purpose is a procedure message.

(2) Procedure messages are also used to order frequency changes, emergency silence, an increase or decrease in speed of transmission; and to give information on signal strength and readability.

b. Format. Although there is no prescribed format for procedure messages, operators are encouraged to use prosigns and operating signals for clarity and brevity. A procedure message requires the long break, $\overline{BT}$, only if a date-time group is used for reference purposes. An example of a procedure message in which the NCS orders emergency silence is shown below:

4C54 DE 76S5
HM HM HM
ZNB PL
$\overline{AR}$

## 16. 8E AND C METHODS OF ERROR CORRECTION

In addition to using service (para 14) and procedure (para 15) messages to correct errors, transmitting station operators may also use either the 8E or C methods described below.

a. 8E Method. When a transmitting station operator makes an error, he immediately transmits 8 or more E's, repeats the last correctly transmitted group, makes the correction, and then continues with the message. The following is an example of the 8E method.

. . .WILL REPORT TO DESIGANDEEEEEEEE TO DESIGNATED POINT. . .

b. C Method. When a transmitting station operator makes an error, he may wait until he transmits the entire text, and then make the correction. After he sends the separation prosign, BT, he sends the prosign C -- correction follows -- and then the correct information. An example of the C method is shown below.

. . .WILL REPORT TO DESIGAND POINT IN COMPLIANCE
WITH PLAN FANFARE.
$\overline{BT}$
C WB POINT DESIGNATED
ZNB GH
K

## 17. CANCELATION OF MESSAGES AND TRANSMISSIONS

a. Cancellation of Messages. Only the originator of a message may cancel a message.

b. Cancellation of Transmissions. The operator at the transmitting station may cancel a transmission -- not a message -- at any time during transmission. To cancel a transmission, the operator sends the error prosign followed by the end of transmission prosign AR, as shown in the example below.

. . .WILL BE EFFECTIVE UPOEEEEEEEE $\overline{AR}$

Note: If a message has already been receipted for, the transmitting station operator must use a service message (para 14) to cancel the transmission.

## Section III. RATG TECHNIQUES

### 18. BREAK-IN PROCEDURE

In an emergency, a station may break-in while another station is transmitting by sending a series of dashes (------) followed by the precedence prosign of the message.

### 19. EXECUTIVE METHOD

a. Definition. The method by which the transmitting station directs the addressees of a message to execute or take action on instructions in the message at a given moment, is called the executive method.

b. Format. The abbreviated plaindress format is used for executive messages. The date-time group (format line 14, appendix III) may be omitted in executive messages.

c. Executive Prosign. The executive prosign, $\overline{IX}$, is used --

(1) As a part of the executive message which contains instructions to indicate the action that addressees must perform upon receipt of the executive signal.

(2) Immediately before the executive signal which is a 5-second dash. The instant of execution is the end of the 5-second dash.

d. Example of Executive Method.

(1) Executive message containing instructions.

4C54 DE 76S5 $\overline{IX}$ $\overline{BT}$ IMPLEMENT PLAN WILDCAT $\overline{BT}$ ZNB SK K

(2) Receipts for executive message.

DE FP22 R $\overline{AR}$
DE G864 R $\overline{AR}$
DE SS7B R $\overline{AR}$
DE S43T R $\overline{AR}$

(3) Executive message containing executive signal.

4C54 DE 76S5 $\overline{IX}$ (a 5-second dash) $\overline{AR}$

Note: The instant of execution is the end of the 5-second dash.

### 20. BROADCAST METHOD

a. Definition. The broadcast method is a method of transmitting messages or information to a number of receiving stations which make no receipt.

b. Use. The broadcast method is used to transmit information for general use. When it is used by Allied military RATG stations, the broadcast method requires that --

(1) All stations operate on specified frequencies.

(2) Times of operation must be scheduled.

(3) The transmitting station, which is usually the NCS, sends a "call tape" for five minutes before the message is sent.

Note: For use within US military RATG stations, (1), (2), and (3) above may be modified to suit command requirements.

c. Example of Broadcast Method. Refer to appendix I, as necessary, for prosign meanings.

(1) Call tape. The call tape is transmitted repetitively for five minutes.

CQ CQ CQ DE 76S5 76S5 76S5

(2) Broadcast.

4C54 4C54 4C54 DE 76S5 76S5 76S5
W NR12 W NR12 --
P P - Ø91915Z Ø91915Z
GR 1Ø GR 1Ø
BT
MXA MXA CRP CRP FKY FKY EJU EJU SSW SSW
LSP LSP VGS VGS LAT LAT YPJ YPJ MXA MXA
BT
ZNB XT ZNB XT
ZKJ2 2ØØØZ AR (at end of schedule)

## 21. TUNING SIGNAL

a. Responsibility. The net control station is responsible for tuning its transmitter to the exact frequency assigned. All other stations in the net tune in on the NCS, even if the NCS is off frequency.

b. Procedure for Tuning.

(1) The NCS transmits: operating signal ZRF, its call sign for twenty seconds, and a 10-second dash.

(2) Subordinate stations tune in on the NCS.

(3) The NCS transmits INT QTS QSZ by which it directs subordinate stations to transmit their call signs twice and checks their frequency.

## 22. SYNCHRONIZING STATION CLOCKS

A subordinate station may request the correct time from the NCS. The net control station time is the official time for the subordinate station, its headquarters, and command.

a. Example of Request for Time Signal.

76S5 DE SS7B
INT ZUA K

b. Example of Time Signal.

SS7B DE 76S5
ZUA 15ØØZ (followed by a five-second dash; the end of the dash is the exact time, to the second)
AR

## APPENDIX I. RADIOTELEGRAPH PROSIGNS

AA All after.

$\overline{AA}$ Unknown station.

AB All before.

$\overline{AR}$ End of transmission.

$\overline{AS}$ Wait (a few seconds).

B More to follow.

$\overline{BT}$ Separate text from heading. Separate text from ending. (colloquial: Long break.)

C You are correct or correction follows.

DE From (station), followed by call sign (colloquial: This is).

EEEEEEEE Error (previous correct word repeated, followed by correction); 8 or more E's.

EEEEEEEE $\overline{AR}$ Cancel this transmission.

F Do not answer (colloquial: Foxtrot transmission).

FM From (originator), followed by originator's sign.

G Repeat back.

$\overline{GR}$ Groups, followed by the actual count.

$\overline{HM}$ $\overline{HM}$ $\overline{HM}$ Emergency silence is imposed.

II Separative sign (short break) used in message format.

$\overline{IMI}$ Repeat.

INFO Information addressee sign.

$\overline{INT}$ Interrogatory; material that follows is in question form.

$\overline{IX}$ Execute to follow; or:

$\overline{IX}$ Executive signal (signal of execution).

J Verify with originator and repeat.

K Go ahead; transmit.

M DEFERRED (precedence).

NR Number.

O OPERATIONAL IMMEDIATE (precedence).

P PRIORITY (precedence).

R ROUTINE (precedence); or:

R Received (I have) your transmission.

T Transmit to or relay to, followed by call signs (Tango Instructions).

TO Action addressee sign.

WA Word after.

WB Word before.

XMT Exempted address sign.

Y EMERGENCY (precedence).

Z FLASH (precedence).

Notes: 1. Overscoring a prosign indicates transmission as a single character.
2. The GENERAL CALL (CQ) and the abbreviation for service (SVC) are not included above; they are not prosigns.

## APPENDIX II. OPERATING SIGNALS

Operating signals that are most often used in RATG operations are listed below. To ask a question (Question column below) the prosign INT must be used in front of the operating signal. For a complete list of operating signals, refer to ACP 131(-).

| Signal | Question | Answer, Advice, or Order |
|---|---|---|
| QMH | | Shift to... (kcs/mcs); if communications not established within 5 minutes, revert to present frequency. |
| QQQ | | This is an unauthorized signal; indicates transmitting aerial is dirty. |
| QRH | Does my frequency vary? | Your frequency varies. |
| QRK | What is the readability of my signals (or those of...)? | The readability is...<br>1. Bad<br>2. Poor<br>3. Fair<br>4. Good<br>5. Excellent |
| QRL | Are you busy? | I am busy (or I am busy with. . ). Please do not interfere. |
| QRM | Are you being interfered with? | I am being interfered with. |
| QRN | Are you troubled with static? | I am troubled with static. |
| QRQ | Shall I send faster? | Send faster (...words per minute). |
| QRS | Shall I send slower? | Send slower (...words per minute). |
| QRT | Shall I stop sending? | Stop sending. |
| QRU | Have you anything for me? | I have nothing for you. |
| QRV | Are you ready? | I am ready. |
| QFS | Is the... radio facility at... (place) in operation? | The... radio facility at... (place) is in operation (or will be in operation in... hours).<br>or<br>Please have the... radio facility at... (place) put in operation. |
| QSA | What is my signal strength (or of...)? | The strength of your signals (or those of. . . ) is ...<br>1. Scarcely perceptible.<br>2. Weak<br>3. Fairly good<br>4. Good<br>5. Very good |
| QSB | Are my signals fading? | Your signals are fading. |

| Signal | Question | Answer, Advice, or Order |
|---|---|---|
| QSL | Can you acknowledge receipt? | I am acknowledging receipt. |
| QSY | Shall I change to transmission on another frequency (on... kcs/mcs)? | Change to transmission on another frequency (on... kcs/mcs). |
| QSZ | Shall I send each word (group) more than once? | Send each word (group) twice (or... times). |
| QTB | Do you agree with my counting of words (groups)? | I do not agree with your word (group) count; I will repeat the first letter or digit of each word (group). |
| QTS | Will you send your call sign for ... minutes now (or at... hours) on ... kcs/mcs, so that your frequency can be measured? | I will send my call sign for... minutes now (or at... hours) on kcs/mcs, so that my frequency can be measured. |
| ZAA | | You are not observing proper circuit discipline. |
| ZAD | | Your operating signal... (1. Not understood; 2. not held). |
| ZAJ | | I am closing down (until...) due to... |
| ZAX | | You are... (1. Causing interference. Listen before sending; 2. Causing interference by inattention to order to wait; 3. Sending at the same time as ... (call sign); 4. Causing delay by slowness in answering; 5. Causing delay by slowness in answering my service/procedure messages; 6. Answering out of turn.). |
| ZBK | Are you receiving my traffic clear? | I am receiving your traffic... (1. Clear; 2. Garbled.). |
| ZBO | Of what precedence? | I have... (numeral followed by precedence pro-sign) messages for you (or for...). |
| ZBW | Will you shift (or ask... to shift) to transmit on... kcs/mcs? | I am (or... is) shifting to transmit on... kcs/mcs. |
| ZBX | Will you shift (or ask... to shift) to receive on... kcs/mcs? | I am (or... is) shifting to receive on... kcs/mcs. |
| ZDF | | Message... was received by... at... Z or was received by... (1. Action addressee(s) at... Z; 2. Info addressee(s) at... Z; 3. All addressee(s) at... Z; 4. Action addressee(s) message center at... Z; 5. Info addressee(s) message center at... Z; 6. All addressee(s) message center at... Z; or, 7. Delivered by broadcast at... Z; 8. Forwarded by commercial means at... Z; 9. Mailed at... Z.). |

| Signal | Question | Answer, Advice, or Order |
|---|---|---|
| ZES | | Your message has been received... (1. incomplete; 2. Garbled.) Request retransmission. |
| ZEX | | This is a book message and may be delivered as a single address message to addressees for whom you are responsible. |
| ZFF | | Inform me when this message (or message...) has been received by...(1. Action addressee(s); 2. Info addressee(s); 3. All addressee(s); 4. Action addressee(s) message center(s); 5. Info ad-addressee(s) message center(s); 6. All addressee(s) message center(s).). |
| ZFH | | This message (or message...) is being (or has been) passed to you (or...) for...(1. Action; 2. Information; 3. Comment.). |
| ZHQ | | Please listen for me on...kcs/mcs and transmit to me on...kcs/mcs. |
| ZKA | Who is net control station on this (or...) frequency? | I am (or...is) net control station on this (or...) frequency. |
| ZKB | Is it necessary to obtain permission of the net control station before transmitting messages? | It is necessary to obtain the permission of the net control station before transmitting messages. |
| ZKD | Shall I take control of the net (for...) (until...)? | Take control of the net (for...) (until...). |
| ZKJ | May I close down (until...)? | ...(1. Close down (until...); 2. I am closing down until...). |
| ZNB | What is authentication of...(1. Message...; 2. Last transmission; 3.....)? | Authentication (of...) is... (1. Message...; 2. Last transmission; 3.....). |
| ZPC | | Your signals are... (1. Fading badly; 2. Fading slightly; 3. Good for...words per minute; 4. Getting stronger; 5. Getting weaker.). |
| ZRF | Will you send tuning signal on your present frequency (or on... kcs/mcs) for one minute, or until AS is given? | Am about to send tuning signal on my present frequency (or on...kcs/mcs). |
| ZUA | Request timing signal now (or at...). | Timing signal will be transmitted now (or at...). The numerals indicating the time will be followed by a 5-second dash, terminating exactly at the time indicated. |
| ZUE | | Affirmative (yes). |
| ZUG | | Negative (no). |

| Signal | Question | Answer, Advice, or Order |
|---|---|---|
| ZUH | | Unable to comply. |
| ZUJ | | Standby. |
| ZWF | | Incorrect. |
| ZWG | | You are correct. |
| ZWH | | Try again. |

## QUICK INDEX

Note: Use the list below only as a guide. Refer to the list above for exact meanings.


Authentication. . . . . ZNB
Affirmative (yes) . . . . . ZUE
Busy. . . . . QRL
Call sign. . . . . QTS
Closedown . . . . . ZAJ ZKJ
Controlled net . . . . . ZKB
Correct (you are) . . . . . ZWG
Directed net. . . . . ZKB
Discipline (net). . . . . ZAA ZAX
Fading signals . . . . . QSB ZPC
Faster (send) . . . . . QRQ
Frequency change/shift . . . . . QMH QSY ZBX ZBW
Group (word) count . . . . . QTB
Incorrect (you are) . . . . . ZWF
Interference. . . . . QRM
Messages. . . . . ZBO ZDF ZES ZEX ZFF ZFH QSL
Negative (no) . . . . . ZUG
Net control station (NCS) . . . . . ZHQ ZKA ZKB ZKD
No (negative) . . . . . ZUG
Operating signal. . . . . ZAD
Precedence. . . . . ZBO
Receipt. . . . . QSL
Readability. . . . . QRK ZBK ZES
Ready. . . . . QRV
Signals . . . . . QSA QSB ZPC ZRF ZUA
Slower (send). . . . . QRS
Static. . . . . QRN
Standby. . . . . ZUJ
Stop sending . . . . . QRT
Strength (signal). . . . . QSA
Timing signal. . . . . ZUA
Try again. . . . . ZWH
Tuning signal. . . . . ZRF
Traffic (clear/garbled). . . . . ZBK
Unable to comply. . . . . ZUH
Words (groups) twice. . . . . QSZ
Wait (standby). . . . . ZUJ
Word (group) count. . . . . QTB
Watch (communications). . . . . ZHQ
Yes (affirmative). . . . . ZUE

## APPENDIX III. RADIOTELEGRAPH MESSAGE FORMAT

| Format Line Number | Contents |
|---|---|
| | HEADING |
| 1 | Not used in radiotelegraph procedure. |
| 2 | Contents call sign(s) of station(s) called. May contain prosign XMT and exempted station(s) when collective call is used; exempted station(s) are not included in the address portion of message (lines 6-9). |
| 3 | Contains prosign DE and call sign of calling station. May contain transmission identification (station serial number) consisting of prosign NR followed by number. |
| 4 | Contains transmission instructions (prosigns: T, G, or F); operating signals; call signs; address designations; plain language. Not used if the call (lines 2 and 3) and address element (lines 6-9) will suffice. |
| 5 | Contains precedence prosign(s); date-time-group; and message instructions in the form of operating signals or prosign $\overline{\text{IX}}$. |
| 6 | Contains prosign FM, followed by designation of originator. |
| 7 | Contains prosign TO, followed by designation of the action addressee(s). |
| 8 | Contains prosign INFO, followed by designation of the information addressee(s). |
| 9 | Contains prosign XMT, followed by the designation of the exempted addressee(s) in collective call (line 2). Not needed if XMT procedure used in line 2. |
| 10 | Contains accounting symbol (as required), group count prosign GR (codress) followed by actual count of groups or GRNC (plaindress), or SVC (service message -- plaindress). |
| 11 | Contains separative prosign $\overline{\text{BT}}$. Separates HEADING from TEXT. Not employed in procedure messages. |
| | TEXT |
| 12 | Contains the TEXT of the message. |
| 13 | Contains separative prosign $\overline{\text{BT}}$. Separates TEXT from ENDING. Not employed in procedure messages. |
| | ENDING |
| 14 | Contains the time-group (local command's choice) in abbreviated plaindress messages. |
| 15 | Contains final instructions: prosign C, followed by correction(s); authentication; operating signals (as required); the prosign AS; the prosign B. |
| 16 | Contains the ending prosign: K or $\overline{\text{AR}}$. |

Notes:

1. Format lines 2 and 3 are known as the CALL.
2. Format lines 2-4 are known as the PROCEDURE.
3. Format line 5 is known as the PREAMBLE.
4. Format lines 6-9 are known as the ADDRESS.
5. Format line 10 is known as the PREFIX.
6. Format lines 14-16 are known as the PROCEDURE.
7. In addition to its use in lines 11 and 13 above, the separative prosign II (short break) is also used as follows:

    a. Before and after all prosigns in format lines 2-5, except DE, $\overline{AA}$, NR, and $\overline{IX}$.
    b. Before prosigns FM, TO, INFO, and XMT, in format lines 6-9.
    c. Before the accounting symbol, if used, in format line 10.

STUDENT NOTES

# APPENDIX IV. INTERNATIONAL MORSE CODE

## Letters and Figures

| | | | | | |
|---|---|---|---|---|---|
| A ·- | G --· | M -- | S ··· | Y -·-- | 5 ····· |
| B -··· | H ···· | N -· | T - | Z --·· | 6 -···· |
| C -·-· | I ·· | O --- | U ··- | 1 ·---- | 7 --··· |
| D -·· | J ·--- | P ·--· | V ···- | 2 ··--- | 8 ---·· |
| E · | K -·- | Q --·- | W ·-- | 3 ···-- | 9 ----· |
| F ··-· | L ·-·· | R ·-· | X -··- | 4 ····- | Ø ----- |

## Punctuation and other signs

| | |
|---|---|
| Block (capital letters or underline) | ··--·- |
| Fraction bar (slant) | -··-· |
| Period | ·-·-·- |
| Hyphen or dash | -····- |
| Parenthesis (before and after) | -·--·- |
| Comma | --··-- |
| Question mark | ··--·· |
| Colon | ---··· |
| Apostrophe | ·----· |
| Accented e | ··-·· |
| Accented a | ·-·-- |

## Character Formulations

A dot is used as the unit of duration.

A dash is equal to 3 units.

An element is either a dot or a dash.

The space between elements is 1 unit.

The space between characters is 3 units.

The space between groups is 7 units.

STUDENT NOTES:

## APPENDIX V. US MESSAGE PRECEDENCE POLICY

Effective 1 September 1963

| Precedence Designation, Prosign, Use, and Examples | Handling by Communications Personnel |
|---|---|
| FLASH (Z). Reserved for initial enemy contact messages or operational combat messages. Brevity is mandatory. Examples:<br><br>(1) Initial enemy contact reports.<br>(2) Messages recalling or diverting friendly aircraft about to bomb targets unexpectedly occupied by friendly forces; or messages taking emergency action to prevent conflict between friendly forces.<br>(3) Warning of imminent large-scale attacks.<br>(4) Extremely urgent intelligence messages.<br>(5) Messages containing major strategic decisions of great urgency. | (1) Will be hand-carried, processed, transmitted, and delivered in the order received and ahead of all other messages.<br>(2) Messages of lower precedence will be interrupted on all circuits involved until handling of the FLASH message is completed.<br>(3) In automatic systems, where automatic interruption of lower precedence messages is not provided, adequate procedures are to be prescribed to ensure that FLASH messages are not delayed. |
| IMMEDIATE (O). Reserved for messages relating to situations which gravely affect the security of national/allied forces or populace, and which require immediate delivery to the addressee. Examples:<br><br>(1) Amplifying reports of initial enemy contact.<br>(2) Reports of unusual major movements of military forces of foreign powers in time of peace or strained relations.<br>(3) Messages which report enemy counter-attack or which request or cancel additional support.<br>(4) Attack orders to commit a force in reserve without delay.<br>(5) Messages concerning logistical support of special weapons when essential to sustain operations.<br>(6) Reports of wide-spread civil disturbance.<br>(7) Reports of warning of grave natural disaster (earthquake, flood, storm, etc.).<br>(8) Request for, or directions concerning distress assistance.<br>(9) Urgent intelligence messages. | (1) Will be processed, transmitted, and delivered in the order received and ahead of lower precedence.<br>(2) If possible, messages of lower precedence will be interrupted on all circuits involved until handling of the IMMEDIATE message is completed.<br>(3) In automatic systems, where automatic interruption is not provided, adequate procedures are to be prescribed to insure that IMMEDIATE messages are not delayed. |

| Precedence Designation, Prosign, Use, and Examples | Handling by Communications Personnel |
|---|---|
| PRIORITY (P). Reserved for messages which required expeditious action by the addressee and/or furnish essential information for the conduct of operations in progress when routine precedence will not suffice. Examples:<br><br>(1) Situation reports on position of front where attack is impending or where fire or air support will soon be placed.<br>(2) Orders to aircraft formations or units to coincide with ground or naval operations.<br>(3) Aircraft movement reports (e.g., messages relating to requests for news of aircraft in flight, flight plans, cancellation messages to prevent unnecessary search/rescue action).<br>(4) Messages concerning immediate movement of naval, air, and ground forces. | (1) Processed, transmitted, and delivered in the order received and ahead of all messages of ROUTINE precedence.<br>(2) ROUTINE messages being transmitted should not be interrupted unless they are extra long and a very substantial portion of the ROUTINE message remains to be transmitted.<br>(3) PRIORITY messages should be delivered immediately upon receipt at the addressee designation.<br>(4) When commercial refile is required, the commercial precedence that most nearly corresponds with PRIORITY will be used. |
| ROUTINE (R). Reserved for all types of messages which justify transmission by rapid means, unless of sufficient urgency to require a higher precedence. Examples:<br><br>(1) Messages concerning normal peacetime military operations, programs, and projects.<br>(2) Messages concerning stabilized tactical operations.<br>(3) Operational plans concerning projected operations.<br>(4) Periodic or consolidated intelligence reports.<br>(5) Troop movement messages, except when time factors dictate use of higher precedence.<br>(6) Supply and equipment requisition and movement messages, except when time factors dictate use of higher precedence.<br>(7) Administrative, logistic, and personnel matters. | Processed, transmitted, and delivered in the order received and after all messages of higher precedence, consistent with the following:<br><br>(1) When commercial/civil refile is required, the lowest commercial precedence shall be used.<br><br>(2) ROUTINE messages received during nonduty hours at the addressee destination may be held for morning delivery unless specifically prohibited by the command/formation concerned. |

Note: NATO and other allied commands/nations may continue to use the other two precedences, EMERGENCY and DEFERRED. When such messages enter a communications system of the United States, the following applies: (1) EMERGENCY messages will be handled before IMMEDIATE and after FLASH messages. (2) DEFERRED messages will be handled after ROUTINE messages.

## References


| | |
|---|---|
| ACP 100 | Allied Call Sign and Address Group Systems - Instructions and Assignments (classified) |
| ACP 124 | Radiotelegraph Procedure (classified). |
| ACP 131 ( ) | Communications Instructions, Operating Signals |